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CHINESE RUBBER ACCELERATOR INDUSTRY

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[Summary: Production of rubber accelerators in China began after the liberation, but still does not meet China's requirements. China now produces diphenylguanidine, benzothiacyl disulfide, tetramethylthiuram monosulfide, hexamethylene tetramine, butyraldehyde aniline, o-tolyl biguanide, and Neozone A and D antioxidants. In January 1953, plans were made to construct plants for the production of mercaptobenzo thiazole and tetramethylthiuram accelerators and Neozone C antioxidant. Because of the high cost of raw materials produced in China, accelerators and antioxidants manufactured in China are unable to compete in price with those imported.]

Before the liberation, all rubber accelerators used in China were imported, first from Germany, and later from England, America, Japan, France, and other countries. The rubber industry was completely controlled by foreign capitalists. It is extremely important that China produce its own accelerators. For example, if China were to consume 20,000 tons of crude rubber a year, 200 tons of accelerators would be required. If China produced no accelerators at all, this item alone would necessitate a foreign payment of over 300,000 US dollars. The rubber industry of China has developed in step with the other industries, and China is now able to produce some accelerators for its own needs. Nevertheless, it must continue to expand the production of accelerators until the industry is entirely self-supplying.

Since the liberation, facilities have been established in China for the manufacture of the following organic accelerators:

Name	Chemical Term
Ti-tzu (地字)	Diphenylguanidine
Ti-ai-mu (地愛母)	Benzothiacyl disulfide
Meng-nai-k'o-mu (蒙乃克母)	Tetramethylthiuram monosulfide
Ai-ch'u (愛母)	Hexamethylene tetramine
808	Butyraldehyde aniline
1000	O-tolyl biguanide

The following accelerators are still imported by China:

Name	Chemical Term
Ai-mu* (愛母)	Mercaptobenzo thiazole
T'i-tzu* (撫字)	Tetramethylthiuram
858	Butyraldehyde butylanime
Ch'i-tzu (齊字)	Zinc dimethylthiocarbamate
P'i-tzu (彼字)	Pentamethylene dithiocarbamate Piperidine

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*Domestic production scheduled to begin during latter part of 1953.

Ai-mu and Ti-tzu accelerators are consumed in the largest quantities in China. Ti-ai-mu and Ti-tzu have the next highest rates, and Meng-nai-k'o-ssu and Ai-ch'u follow. The rest are used relatively little. The type of accelerator used by rubber manufacturers depends on the price and quality of the accelerator itself, the special characteristics the producers desire in the rubber product, and very often the type of accelerator the manufacturers are accustomed to using.

In general, the quality of antioxidants produced in China, such as Neozone A (phenyl-a-naphthyl amine) and Neozone D (phenyl- β -naphthyl amine) equals that of imported antioxidants, and in some cases even exceeds the quality of the imported products. However, the quantity produced remains beneath China's requirements. As of January 1953, it was planned to establish facilities for the production of Neozone C antioxidant.

Because of the high cost of raw materials produced in China, accelerators and antioxidants manufactured in China cannot compete in price with those which are imported. The major raw materials used in the manufacture of organic accelerators and antioxidants are phenylamine, carbon disulfide, formaldehyde, ammonia or aqua ammonia, ortho-nitromonochlorobenzene, and butyl alcohol.

At present, phenylamine is not produced in China, but there are plants producing pure benzene. Later in 1953 both phenylamine and methylaniline may be produced.

Plants already existed in 1951 for the production of carbon disulfide, the price at that time being 44 million yuan per ton. New plants have now been set up in the Northwest and Southwest, and have caused the price to fall somewhat.

Although formaldehyde is not now produced domestically, methyl alcohol is being produced. Plants producing methyl alcohol could expand their facilities to manufacture formaldehyde.

Several modern plants in China manufacture ammonia and aqua ammonia, such as the Shanghai T'ien-li-tan-ch'i Plant and the Nanking Yung-li Plant. Many other smaller plants also manufacture these products.

Orthonitromonochlorobenzene is not manufactured in China at present, but plants which are now producing metronitromonochlorobenzene could also produce orthonitromonochlorobenzene.

Plants are now being constructed to produce butyl alcohol and acetone. These plants are scheduled to begin production in 1953.

Without a doubt the accelerator industry is necessary to China's economy. Whether it can develop adequately to meet China's requirements depends upon the cooperation of all concerned. The Ministry of Trade should take the following measures to stimulate domestic production: (1) aiding plants with money and equipment, (2) limiting the imports of finished products and regulating their prices, (3) stimulating imports of raw materials, and (4) controlling distribution of all products within the country.

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